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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,461	03/01/2004	Kenichi Mizugaki	ASA-1164	7375

7590 03/30/2007
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EXAMINER

LEE, SIU M

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/788,461

Applicant(s)

MIZUGAKI ET AL.

Examiner

Siu M. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-12, 15-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 13, 14, 18, 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3-1-2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 7/17/2003. It is noted, however, that applicant has not filed a certified copy of the Japan 2003-198186 application as required by 35 U.S.C. 119(b).

Claim Objections

1. Claim 14 is objected to because of the following informalities:

Claim 14 recites a radio communication system and should be depending on claim 8 instead of claim 7 wherein claim 7 recites a radio signal receiver.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 15, 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Siwiak (US 2004/0165686 A1).

(1) Regarding claim 1:

Siwiak discloses a radio signal receiver in a radio communication system for executing communication by transmitting and receiving pulse signals (the high capacity data ultra-wideband (UWB) data receiver system in figure 38, paragraph 0306, lines 1-2), comprising:

a template generation portion (equalizer 55 and harmonic generator 59 in figure 38 and the microprocessor 32 and channel assessment 39 in figure 40) for generating a template (the equalizer 55 as is show in detail in figure 40, paragraph 0308, lines 1-9); and

a correlation device (mixer 57 in figure 38, the mixer 57 correlates the incoming signal with the template signal 567 from pn/data combiner 56, paragraph 0098, line 1 to paragraph 0099, line 2) for calculating correlation between the template generated and a signal received from a transmitter;

wherein said template generation portion generates the template on the basis of a reception waveform of a first signal as a known signal received from said transmitter (the microprocessor 32 of the template generation portion receives the first signal from the transmitter and assess the signal and signal the result to the channel assessment 39 which sets the delays and amplitudes to the equalizer 55, the code generator 28 generates a chip code sequence and the sequence are delay and adjusted in amplitude by element 24, the outputs of element 24 are summed and used as a template, paragraph 0309, lines 10-23) ; and

said correlation device determines a correlation between a second signal received from said transmitter and the template and discriminates the second signal on the basis of the correlation result (mixer 57 in figure 38, the mixer 57 correlates the incoming signal with the template signal 567 from pn/data combiner 56, paragraph 0098, line 1 to paragraph 0099, line 2).

(2) Regarding claim 2:

Siwiak discloses a radio signal receiver wherein said template generation portion includes an amplitude peak detector (microprocessor 32 assess the signal and signal the result to the channel assessment 39 which set the amplitude and the delays, paragraph 0309, lines 3-6) for detecting a plurality of amplitude peaks from the reception waveform of said first signal (figure 41 demonstrates the detection of the peaks of the first signal, paragraph 0309, lines 12-15), amplifies a predetermined reference template on the basis of the amplitude peaks so detected (figure 39 shows the set delay and amplitude elements 24 setting the delay and amplitude of the template signal from the code generator, paragraph 0309, lines 18-23), synthesizes the plurality of reference templates so amplified and generates the template (the outputs from the element 24 are added in 22 to generates the templates, paragraph 0308, lines 6-7).

(3) Regarding claim 3:

Siwiak discloses a radio signal receiver wherein said amplitude peak detector detects and outputs a peak timing of the amplitude peak detected (the peak timing as shown in figure 41, 46a, 46b, 46c, paragraph 0309, lines 12-15), and the reference templates amplified are superposed and synthesized at timings deviated by the time

corresponding to the corresponding peak timings detected (figure 39 shows the set delay and amplitude elements 24 setting the delay and amplitude of the template signal from the code generator, paragraph 0309, lines 18-23, the outputs from the element 24 are added in 22 to generates the templates, paragraph 0308, lines 6-7).

(4) Regarding claim 15:

Siwiak1 discloses a signal receiving method in a radio signal communication system for performing communication by transmitting and receiving pulse signals (high data rate ultra-wideband (UWB) system including a high date-rate UWB transmitter and a high data-rate receiver, paragraph 0081, lines 1-4), comprising the steps of:

receiving a first signal (the receiver as shown in figure 38 receives a first signal);

judging a propagation path condition between a transmitter and a receiver by use of the first signal (figure 41 shows a situation of received signal due to multipath environment, paragraph 0309, lines 10-12);

generating a template used for correlation calculation with a reception signal in accordance with the propagation path condition judged (the microprocessor 32 of the template generation portion receives the first signal from the transmitter and assess the signal and signal the result to the channel assessment 39 which sets the delays and amplitudes to the equalizer 55, the code generator 28 generates a chip code sequence and the sequence are delay and adjusted in amplitude by element 24, the outputs of element 24 are summed and used as a template, paragraph 0309, lines 10-23); and

performing the correlation calculation between the template and the second signal (mixer 57 in figure 38, the mixer 57 correlates the incoming signal with the

template signal 567 from pn/data combiner 56, paragraph 0098, line 1 to paragraph 0099, line 2).

(5) Regarding claim 16:

Siwiak discloses a signal receiving method wherein said judgment step of said propagation path condition includes a step of detecting a plurality of amplitude peaks from a reception waveform of the first signal and a step of measuring amplitude values or peak timings of said amplitude peaks (microprocessor 32 assess the signal and signal the result to the channel assessment 39 which set the amplitude and the delays, paragraph 0309, lines 3-6), and said step of generating the template generates the template by use of the amplitude values or peak timings of the amplitude peaks (figure 39 shows the set delay and amplitude elements 24 setting the delay and amplitude of the template signal from the code generator according to the channel assessment control on input 38, paragraph 0309, lines 18-23, the outputs from the element 24 are added in 22 to generates the templates, paragraph 0308, lines 6-7).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 6, 8, 9, 10, 11, 12, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siwiak (US 2004/0165686 A1) (refer as Siwak1) in view of Siwiak (US 2004/0174928 A1) (refer as Siwiak2).

(1) Regarding claim 6:

Siwiak1 discloses all the subject matter as discussed in claim 1 except said transmitter is made through a packet, the first signal is contained in a header portion of said packet and the second signal is contained in an information portion of said packet.

However, Siwiak2 discloses a transmitter is made through a packet, the first signal is contained in a header portion of said packet and the second signal is contained in an information portion of said packet (figure 52A discloses a communication packet comprises of a known pattern for synchronizing the receiver (sync), a known pattern for tuning the receiver (tune) wherein the sync and tune sections are part of the header portion and then the header and the data section, paragraph 0347, lines 1-4).

It is desirable for the transmitter is made through a packet, the first signal is contained in a header portion of said packet and the second signal is contained in an information portion of said packet because it can support relatively high data-rates in a multipath environment (paragraph 0005, lines 13-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Siwiak2 in the system of Siwiak1 to improve the performance of the system.

(2) Regarding claim 8:

Siwiak1 discloses a communication system for performing communication by transmitting and receiving pulse signals (high data rate ultra-wideband (UWB) system

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including a high data-rate UWB transmitter and a high data-rate receiver, paragraph 0081, lines 1-4), including a transmitter and a receiver, wherein:

the receiver includes a template generation portion for generating a template (equalizer 55 and harmonic generator 59 in figure 38 and the microprocessor 32 and channel assessment 39 in figure 40 for generating a template, the equalizer 55 as is show in detail in figure 40, paragraph 0309, lines 18-23); and

a correlation device for calculating correlation between the template generated and the second signal received after the first signal (mixer 57 in figure 38, the mixer 57 correlates the incoming signal with the template signal 567 from pn/data combiner 56, paragraph 0098, line 1 to paragraph 0099, line 2), and performing detection.

Siwiak1 fails to disclose the transmitter transmits a second signal after transmission of a predetermined first signal used for judging a propagation path condition between said transmitter and said receiver.

However, Siwiak2 discloses the transmitter transmits a second signal after transmission of a predetermined first signal used for judging a propagation path condition between said transmitter and said receiver (figure 52A discloses an exemplary protocol wherein the transmitter sends a known pattern for synchronizing the receiver and then sends a known pattern for tuning the weights before sending the header and data, paragraph 0347, lines 1-4).

It is desirable for the transmitter transmits a second signal after transmission of a predetermined first signal used for judging a propagation path condition between said transmitter and said receiver because it can support relatively high data-rates in a

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multipath environment (paragraph 0005, lines 13-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Siwiak2 in the system of Siwiak1 to improve the performance of the system.

(3) Regarding claim 9:

Siwiak1 discloses a radio communication system wherein said template generation portion acquires a reception waveform of the first signal, detects a plurality of amplitude peaks from the reception waveform acquired, and generates the template on the basis of amplitude values of the amplitude peaks detected or peak timing (microprocessor 32 assess the signal and signal the result to the channel assessment 39 which set the amplitude and the delays, paragraph 0309, lines 3-6, figure 41 demonstrates the detection of the peaks of the first signal, paragraph 0309, lines 12-15, figure 39 shows the set delay and amplitude elements 24 setting the delay and amplitude of the template signal from the code generator, paragraph 0309, lines 18-23, the outputs from the element 24 are added in 22 to generates the templates, paragraph 0308, lines 6-7).

(4) Regarding claim 10:

Siwiak1 discloses a radio communication system wherein said template generation portion generates the template by amplifying and synthesizing reference templates stored in advance on the basis of the amplitude values detected (the set delay and amplitude element 24 amplify and delay the reference templates (the Barker sequence) stored in the code generator 28, paragraph 0308).

(5) Regarding claim 11:

Siwiak1 further discloses a radio communication system wherein said template generation portion generates the template by superposing a plurality of reference templates stored in advance by deviating their positions on a time axis on the basis of the peak timing detected (figure 39 discloses the generation of the template by setting delay and amplitude to the stored code in the code generator and superposing the plurality of the output from the element 24, paragraph 0308).

(6) Regarding claim 12:

Siwiak2 further discloses that the first signal and the second signal are transmitted during one communication session (figure 52A discloses a communication session comprises of a known pattern for synchronizing the receiver (sync), a known pattern for tuning the receiver (tune) and then the header and the data section, paragraph 0347, lines 1-4).

(7) Regarding claim 19:

Siwiak1 discloses all the subject matter as discussed in claim 15 except wherein the first signal and the second signal are contained in the same packet.

However, Siwiak2 discloses a method wherein the wherein the first signal and the second signal are contained in the same packet (figure 52A discloses a communication packet comprises of a known pattern for synchronizing the receiver (sync), a known pattern for tuning the receiver (tune) wherein the sync and tune sections are part of the header portion and then the header and the data section, paragraph 0347, lines 1-4).

It is desirable for the first signal and the second signal are contained in the same packet because it can support relatively high data-rates in a multipath environment (paragraph 0005, lines 13-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Siwiak2 in the system of Siwiak1 to improve the performance of the system.

5. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siwiak (US 2004/0165686 A1) in view of Morris et al. (US 4,777,629).

Siwiak discloses all the subject matter as discussed in claim 2 and 16 except the template generation portion uses the amplitude peak for generating the template when the amplitude peak detected has amplitude exceeding a predetermined threshold value.

However, Morris discloses the usage of the peak that has amplitude exceeding a predetermined threshold value and ignores the peak below the threshold value (column 8, lines 59-66).

It is desirable to uses the amplitude peak for generating the template when the amplitude peak detected has amplitude exceeding a predetermined threshold value because it will save time not to process the peak that are considerably smaller that the highest peak. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Morris et al. in the system of Siwiak to improve the processing speed the system

Allowable Subject Matter

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6. Claims 5, 7, 13, 14, 18, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rizzo et al. (US 5,841,808) discloses a spread spectrum chip rate tracking system. Barham et al. (US 7,126,982 B1) discloses an apparatus for rapid PN code acquisition. Richards et al. (US 6,925,109 B2) discloses a method and system for fast acquisition of ultra-wideband signals. Finn et al. (US 6,512,455 B2) discloses a system and method for monitoring assets, objects, people and animals utilizing impulse radio.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Siu M. Lee whose telephone number is (571) 270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Siu M Lee
Examiner
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CHIEH M. FAN
SUPERVISORY PATENT EXAMINER